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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/840,075

04/24/2001

Jun Hoshii

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01/29/2008

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.

1940 DUKE STREET

ALEXANDRIA, VA 22314

EXAMINER

HUNTSINGER, PETER K

ART UNIT

PAPER NUMBER

2625

NOTIFICATION DATE

DELIVERY MODE

01/29/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

09/840,075

Applicant(s)

HOSHII ET AL.

Examiner

Peter K. Huntsinger

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 12, 23, 34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 12, 23, 34 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/07 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1, 12, 23, 34 and 35 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 12, 23, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka '463, and further in view of Sekine '710 and Takiguchi '681.

Referring to claims 1, 12, and 23, Tanaka '463 discloses a computer-readable medium whereon an image data interpolation program has been recorded to implement

pixel interpolation to image data of an image represented in multi-tone dot matrix pixels on a computer, said computer-readable medium with the image data interpolation program recorded thereon, after being set ready for use on a computer, making the computer perform:

- a function of image data acquisition that acquires said image data;

- a first interpolation processing function that interpolates pixels to said image data without decreasing the degree of tone value difference between the existing pixels (nearest neighbor interpolation, col. 1, lines 20-27);

- a second interpolation processing function that interpolates pixels to said image data without affecting the gradation of the tones of the image (linear interpolation, col. 1, lines 28-42); and

- a function of determining if the image is a non-natural image or a natural image, or that it cannot be determined whether the image is either a natural image nor a non-natural image (col. 9, lines 7-16), said determination that the image is a non-natural image resulting in said first interpolation processing function, said determination that the image is a natural image resulting in said second interpolation processing function (col. 13, lines 38-58), and if the image data cannot be determined to be either said natural image or said non-natural image, both the first and second interpolation processing functions are performed and results from the first and second interpolation processing functions are blended (col. 16, lines 38-42).

Tanaka '463 discloses nearest neighbor interpolation but does not disclose expressly pattern matching interpolation.

Sekine '710 disclose a first interpolation processing function executing pattern matching interpolation according to a predetermined rule, when a given pattern exists in reference pixels (col. 5, lines 43-47).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement pattern matching interpolation. The motivation for doing so would have been to improve speed or image sharpness over other interpolation processes.

Tanaka '463 does not disclose expressly determining whether an image is a natural or a non-natural image based on luminance.

Takiguchi '681 discloses a function of histogram acquisition that acquires a histogram of a number of discrete luminance values calculated by linearly combining color component brightness values of at least each of reference pixels (col. 12, lines 37-45, a histogram of the luminance of an image is acquired); and

determining if the image is a non-natural image or a natural image based on the number of discrete luminance values appearing in the histogram of discrete color values (col. 12, lines 37-45, when luminance is distributed across the entire surface as shown in Fig. 8, the image is determined as a natural image).

At the time of the invention, it would have obvious to a person of ordinary skill in the art to determine if an image is a natural or non-natural image based on the number of distinct luminance values. The motivation for doing so would have been to increase the speed for processing. Therefore, it would have been obvious to combine Sekine

'710 and Takiguchi '681 with Tanaka '463 to obtain the invention as specified in claims 1, 12, and 23.

Referring to claim 34, Sekine '710 disclose wherein said pattern matching interpolation refers to pixels determined based on the given pattern (col. 5, lines 43-47).

5. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka '463, and further in view of Sekine '710, Takiguchi '681, and well known prior art.

Referring to claim 35, Tanaka '463 discloses a computer-readable medium whereon an image data interpolation program has been recorded to implement pixel interpolation to image data of an image represented in multi-tone dot matrix pixels on a computer, said computer-readable medium with the image data interpolation program recorded thereon, after being set ready for use on a computer, making the computer perform:

- a function of image data acquisition that acquires said image data;

- a first interpolation processing function that interpolates pixels to said image data without decreasing the degree of tone value difference between the existing pixels (nearest neighbor interpolation, col. 1, lines 20-27);

- a second interpolation processing function that interpolates pixels to said image data without affecting the gradation of the tones of the image (linear interpolation, col. 1, lines 28-42); and

- a function of determining if the image is a non-natural image or a natural image, or that it cannot be determined whether the image is either a natural image nor a non-

natural image (col. 9, lines 7-16), said determination that the image is a non-natural image resulting in said first interpolation processing function, said determination that the image is a natural image resulting in said second interpolation processing function (col. 13, lines 38-58), and if the image data cannot be determined to be either said natural image or said non-natural image, both the first and second interpolation processing functions are performed and results from the first and second interpolation processing functions are blended (col. 16, lines 38-42).

Tanaka '463 discloses nearest neighbor interpolation but does not disclose expressly pattern matching interpolation.

Sekine '710 disclose a first interpolation processing function executing pattern matching interpolation according to a predetermined rule, when a given pattern exists in reference pixels (col. 5, lines 43-47).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement pattern matching interpolation. The motivation for doing so would have been to improve speed or image sharpness over other interpolation processes.

Tanaka '463 does not disclose expressly determining whether an image is a natural or a non-natural image based on luminance.

Takiguchi '681 discloses a function of histogram acquisition that acquires a histogram of a number of discrete luminance values calculated by linearly combining color component brightness values of at least each of reference pixels (col. 12, lines 37-45, a histogram of the luminance of an image is acquired); and

determining if the image is a non-natural image or a natural image based on the number of discrete luminance values appearing in the histogram of discrete color values (col. 12, lines 37-45, when luminance is distributed across the entire surface as shown in Fig. 8, the image is determined as a natural image).

At the time of the invention, it would have obvious to a person of ordinary skill in the art to determine if an image is a natural or non-natural image based on the number of distinct luminance values. The motivation for doing so would have been to increase the speed for processing.

Takiguchi '681 discloses determining if an image is natural or non-natural based on the number of discrete luminance values but does not disclose expressly the determination being based on whether the number is less than a predetermined value.

Official Notice is taken that it is well known and obvious to compare a determined number to a predetermined value (i.e. a threshold) (See MPEP 2144.03). The motivation for doing so would be to select a value for determining when an event or change can be determined. Therefore, it would have been obvious to combine Sekine '710, Takiguchi '681, and well known prior art with Tanaka '463 to obtain the invention as specified in claim 35.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter K. Huntsinger whose telephone number is (571)272-7435. The examiner can normally be reached on Monday - Friday.




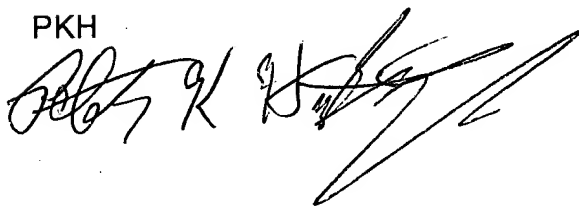
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Moe Aung can be reached on (571)272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PKH



AUNG S. MOE  
SUPERVISORY PATENT EXAMINER

1/22/08